

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): An electric power steering apparatus, which controls a motor that gives a steering assisting force to a steering mechanism based on an electric current controlling value which is computed from a motor electric current command value which has been computed by a computing device based on a steering torque generated in a steering shaft and an electric current value of the motor, the electric power steering apparatus comprising:

a self-aligning torque estimating section which estimates a self-aligning torque by a disturbance observer constitution; and

a steering torque feedback section which computes a steering reaction force AT based on a self-aligning torque estimated value which has been estimated by the self-aligning torque estimating section and feeds the result back to the steering torque,

wherein the disturbance observer constitution comprises:

a first section having a first factor which is a product of an electric characteristic of the motor and a low-pass filter; and

a second section having a second factor which is a quotient obtained by dividing the low pass filter by a theoretical model.

2. (previously presented): An electric power steering apparatus, which controls a motor that gives a steering assisting forces to a steering mechanism based on an electric current controlling value which is computed from a motor electric current command value which has been computed by a computing device based on a steering torque generated in a steering shaft and an electric current value of the motor, the electric power steering apparatus comprising:

a self-aligning torque estimating section which estimates a self-aligning torque from a motor rotation signal or an angular speed signal and the motor electric current command value; and

a steering torque feedback section which computes a steering reaction force AT based on a self-aligning torque estimated value which has been estimated by the self-aligning torque estimating section and feeds the result back to the steering torques.

3. (previously presented): The electric power steering apparatus as set forth in Claim 1, wherein definition of static characteristics of the steering torque feedback section is determined based on the steering reaction force and the self-aligning torque estimated value.

4. (previously presented): The electric power steering apparatus as set forth in Claim 1, wherein the definition of dynamic characteristics of the steering reaction force AT of the steering torque feedback section is performed such that a gain of a transmission function in a frequency band of information which is desirous to be conveyed to a drive is allowed to be large,

while the gain of the transmission function in the frequency band of information which is not desirous to be conveyed to the drive is allowed to be small.

5. (previously presented): The electric power steering apparatus as set forth in Claim 1, wherein a characteristic of a controller into which a deviation between the steering torque and an output from the steering torque feedback section is inputted is allowed to be a proportional factor in a low range and a cutoff factor in a high range, without containing an integral factor.

6. (previously presented): The electric power steering apparatus as set forth in claim 2, wherein definition of static characteristics of the steering torque feedback section is determined based on the steering reaction force AT and the self-aligning torque estimated value .

7. (previously presented): The electric power steering apparatus as set forth in claim 2, wherein the definition of dynamic characteristics of the steering reaction force AT of the steering torque feedback section is performed such that a gain of a transmission function in a frequency band of information which is desirous to be conveyed to a driver is allowed to be large, while the gain of the transmission function in the frequency band of information which is not desirous to be conveyed to the driver is allowed to be small.

8. (previously presented): The electric power steering apparatus as set forth in claim 2, wherein a characteristic of a controller into which a deviation between the steering torque and an output from the steering torque feedback section is inputted is allowed to be a proportional factor in a low range and a cutoff factor in a high range, without containing an integral factor.